

Notice of Allowability

Application No.

09/742,671

Examiner

Chih-Cheng Glen Kao

Applicant(s)

SCHMIDT ET AL.

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 10/17/03.
2. ☒ The allowed claim(s) is/are 3-8.
3. ☒ The drawings filed on 20 December 2000 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
 - * Certified copies not received: _____.
5. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78:
 - (a) ☐ The translation of the foreign language provisional application has been received.
6. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

7. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
8. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached:
 - 1) ☐ hereto or 2) ☐ to Paper No. _____.
 - (b) ☐ including changes required by the proposed drawing correction filed _____, which has been approved by the Examiner.
 - (c) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No. _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the margin according to 37 CFR 1.121(d).

9. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|---|
| 1 <input type="checkbox"/> Notice of References Cited (PTO-892) | 5 <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2 <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6 <input type="checkbox"/> Interview Summary (PTO-413), Paper No. _____ |
| 3 <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No. _____ | 7 <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4 <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8 <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9 <input type="checkbox"/> Other |

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Walter Kupper on December 11, 2003, and January 13, 2004.

2. The application has been amended as follows:

Claim 3. (amended) A measuring apparatus ~~gear-reduction device~~ for measuring and transmitting rotary and swivel movements, comprising: a gear-reduction device comprising a plurality of wheel/pinion pairs, each wheel/pinion pair having a gear axle, a gear wheel, and a pinion gear; the gear wheel and the pinion gear being rigidly connected to the gear axle; said gear-reduction device being adapted to be coupled to a rotary object that is coupled to said gear-reduction device, that moves in a plane of rotation, and whose movement is to be measured within a measuring range; and an optical angle-measuring device; wherein said gear-reduction device ~~producing~~ produces an output motion that is reduced in relation to the movement of the rotary object, thereby expanding the measuring range; wherein

the gear wheels of the different wheel/pinion pairs lie in different gear-wheel planes, at least a part of the gear-wheel planes being parallel to each other and inclined in relation to the plane of rotation of the rotary object;

the gear wheels of the different wheel/pinion pairs are of equal diameter;

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the wheel/pinion pairs follow each other in a sequence where the pinion gear of each wheel/pinion pair is engaged in the gear wheel of the next following wheel/pinion pair;

the gear wheel of the first wheel/pinion pair in the sequence is an input wheel, being positively engaged and driven by the rotary object;

the gear wheel of the last wheel/pinion pair in the sequence is an output wheel, the pinion of the last wheel/pinion pair being ~~adapted to positively engage~~ engaged and ~~drive~~ driving the an optical angle-measuring device ~~adapted for~~ by rotary swivel motion in a swivel-motion plane;

the gear-wheel plane of the input wheel is parallel to the plane of rotation of the rotary object; and

the gear-wheel plane of the output wheel is parallel to the swivel-motion plane of the optical angle-measuring device.

Claim 4. (amended) A measuring apparatus ~~gear-reduction device~~ for measuring and transmitting rotary and swivel movements, comprising: a gear-reduction device comprising a plurality of wheel/pinion pairs, each wheel/pinion pair having a gear axle, a gear wheel, and a pinion gear, the gear wheel and the pinion gear being rigidly connected to the gear axle; said gear-reduction device being adapted to be coupled to a rotary object that is coupled to said gear-reduction device, that moves in a plane of rotation, and whose movement is to be measured within a measuring range; and an optical angle-measuring device; wherein said gear-reduction device ~~producing~~ produces an output motion that is reduced in relation to the movement of the rotary object, thereby expanding the measuring range; wherein

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the gear wheels of the different wheel/pinion pairs lie in different gear-wheel planes;~~at~~
~~least a part of the gear-wheel planes being parallel to each other and inclined in relation to the~~
~~plane of rotation of the rotary object;~~

the gear wheels of the different wheel/pinion pairs are of equal diameter;

~~the wheel/pinion pairs follow each other in a sequence where the pinion gear of each~~
~~wheel/pinion pair is engaged in the gear wheel of the next following wheel/pinion pair;~~

the gear wheel of the first wheel/pinion pair in the sequence is an input wheel, being
positively engaged and driven by the rotary object;

the gear wheel of the last wheel/pinion pair in the sequence is an output wheel, the pinion
of the last wheel/pinion pair being ~~adapted to positively engage~~ engaged and ~~drive~~ driving the an
optical angle-measuring device ~~adapted for~~ by rotary swivel motion in a swivel-motion plane;

the gear-wheel plane of the output wheel is parallel to the swivel-motion plane of the
optical angle-measuring device; and

all gear-wheel planes are parallel to each other and inclined at an oblique angle in relation
to the plane of rotation of the rotary object.

Claim 5. (amended) The measuring apparatus ~~gear-reduction device~~ of claim 3, wherein the
input wheel has an input shaft and is kinematically coupled to a driving unit, and the output
wheel has a central output shaft ~~adapted~~ to transmit movement to a driven device.

Claim 6. (amended) The measuring apparatus ~~gear-reduction device~~ of claim 5, further
comprising a base plate, a cover plate, and a plurality of rotary bearings mounted in the base
plate and the cover plate, wherein at least the input shaft and the central output shaft run in the

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rotary bearings and wherein ~~further~~ the gear-reduction device is ~~adapted to be~~ flange-mounted on the driving unit ~~and~~ to form a unitary module with the driving unit.

Claim 7. (amended) The measuring apparatus ~~gear-reduction device~~ of claim 4, wherein the input wheel has an input shaft and is kinematically coupled to a driving unit, and the output wheel has a central output shaft ~~adapted~~ to transmit movement to a driven device.

Claim 8. (amended) The measuring apparatus ~~gear-reduction device~~ of claim 7, further comprising a base plate, a cover plate, and a plurality of rotary bearings mounted in the base plate and the cover plate, wherein at least the input shaft and the central output shaft run in the rotary bearings and wherein ~~further~~ the gear-reduction device is ~~adapted to be~~ flange-mounted on the driving unit ~~and~~ to form a unitary module with the driving unit.

Reasons for Allowance

3. Claims 3-8 are allowed.

4. The following is an examiner's statement of reasons for allowance:

With regards to claim 3, prior art does not disclose or fairly suggest, a measuring apparatus for measuring and transmitting rotary and swivel movements including at least a part of gear-wheel planes being parallel to each other and inclined in relation to the plane of rotation of a rotary object, gear wheels of different wheel/pinion pairs of equal diameter, the gear-wheel plane of an input wheel parallel to the plane of rotation of the rotary object, and an output wheel parallel to the swivel-motion plane of an optical angle-measuring device, as specified in combination with all the limitations in the claim. Claims 5 and 6 are allowed by virtue of their dependency.

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With regards to claim 4, prior art does not disclose or fairly suggest, a measuring apparatus for measuring and transmitting rotary and swivel movements including gear wheels of different wheel/pinion pairs of equal diameter, a gear-wheel plane of an output wheel parallel to the swivel-motion plane of an optical angle-measuring device, and all gear-wheel planes being parallel to each other and inclined at an oblique angle in relation to the plane of rotation of a rotary object, as specified in combination with all the limitations in the claim. Claims 7 and 8 are allowed by virtue of their dependency.

Conclusion


Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chih-Cheng Glen Kao whose telephone number is (571) 272-2492. The examiner can normally be reached on M - F (9 am to 5 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.


gk


EDWARD J. GLICK
SUPERVISORY PATENT EXAMINER